

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-22 (Canceled).

Claim 23 (Currently Amended): A transformer comprising:

a high voltage winding having turns; and

a low voltage winding having turns, wherein,

each of said high voltage winding and said low voltage winding being magnetically permeable and having a flexible conductor that is configured to contain an electric field, and

the turns of the high voltage winding being intermixed with turns of the low voltage winding, said flexible conductor includes

a central electrical conductor,

a first layer having semi-conducting properties provided around said electrical conductor,

a solid insulating layer provided around said first layer, and

a second layer having semi-conducting properties provided around said solid insulating layer and configured to contain an electric field in the flexible conductor, wherein said central conductor includes a plurality of strands of wire, a portion of said strands being insulated strands such that at most only a minority of said plurality of strands being in electrical contact with other strands that are not insulated.

Claim 24 (Original): A transformer according to claim 23, wherein:

said low voltage winding being wound as a low voltage winding layer positioned between two corresponding adjacent high voltage winding layers.

Claim 25 (Original): A transformer according to claim 23, wherein:

respective layers of said high voltage winding and said low voltage winding being arranged in a repeated periodic pattern comprising one high voltage winding layer, followed by a low voltage winding layer, followed by two high voltage winding layers, and followed by repetitions of a low voltage winding layer, followed by another two high voltage winding layers.

Claim 26 (Original): A transformer according to claim 23, wherein:

at least one of the turns of the low voltage winding being split into subturns, each of said subturns being connected in parallel so as to reduce a difference between a number of high voltage winding turns and a number of low voltage winding turns.

Claim 27 (Original): A transformer according to claim 26, wherein:

each turn of the low voltage winding being split into parallel-connected subturns equal in number to a corresponding number of high voltage winding turns.

Claim 28 (Original): A transformer according to claim 27, wherein:

the turns of the high voltage winding and the turns in the low voltage winding being arranged symmetrically in a chessboard pattern, when viewed in a cross-section through said high voltage winding and said low voltage winding.

Claim 29 (Canceled).

Claim 30 (Original): A transformer according to claim ~~29~~23, wherein:

a potential on said first layer being substantially equal to a potential on the conductor.

Claim 31 (Original): A transformer according to claim ~~29~~23, wherein:  
said second layer being arranged to constitute substantially an equipotential surface  
surrounding said conductor.

Claim 32 (Original): A transformer according to claim 31, wherein:  
said second layer being connected to a node at a predetermined potential.

Claim 33 (Original): A transformer according to claim 32, wherein:  
said predetermined potential being ground potential.

Claim 34 (Original): A transformer according to claim ~~29~~23, wherein:  
at least one pair of said first layer and said solid insulating layer, and said solid  
insulating layer and said second layer having substantially equal thermal expansion  
coefficients.

Claim 35 (Canceled).

Claim 36 (Original): A transformer according to claim ~~29~~23, wherein:  
each of said first layer, said solid insulating layer and said second layer being fixedly  
connected to a respective adjacent layer along substantially a whole connecting surface.

Claim 37 (Currently Amended): A transformer according to claim ~~29~~23, wherein:  
the flexible conductor further comprises a metal shield disposed therearound, and a  
sheath disposed around the metal shield.

Claim 38 (Original): A transformer according to claim ~~29~~23, wherein:  
a cross-section area of said central electrical conductor being in an inclusive range of 80 through 3000 mm.

Claim 39 (Original): A transformer according to claim 23, wherein:  
an external diameter of the flexible conductor being in an inclusive range of 20 though 250 mm.

Claim 40 (Original): A transformer according to claim 23, further comprising:  
struts of laminated magnetic material located between said high voltage winding and said low voltage winding.

Claim 41 (Original): A transformer according to claim 23, wherein:  
the electric field contained in the flexible conductor being from a high voltage in said conductor in excess of 36 kV.

Claim 42 (Original): A transformer according to claim 23, wherein:  
the flexible conductor being configured to handle a power in excess of 0.5 MVA.

Claim 43 (Currently Amended): A method of winding a transformer, comprising steps of:  
simultaneously winding a high voltage flexible conductor and a low voltage flexible conductor configured to contain an electric field and being magnetically permeable to form a high voltage winding and a low voltage winding; and

intermixing turns of the high voltage winding with turns of the low voltage winding,  
wherein said flexible conductor includes

a central electrical conductor,

a first layer having semi-conducting properties provided around said electrical  
conductor,

a solid insulating layer provided around said first layer, and

a second layer having semi-conducting properties provided around said solid  
insulating layer and configured to contain an electric field in the flexible conductor, and said  
central conductor includes a plurality of strands of wire, a portion of said strands being  
insulated strands such that at most only a minority of said plurality of strands being in  
electrical contact with other strands that are not insulated.

Claim 44 (Original): A method according to claim 43 wherein:

said simultaneously winding step comprises simultaneously unwinding the high  
voltage winding and the low voltage winding from respective drums and winding the high  
voltage flexible conductor and the low voltage flexible conductor on to a transformer drum.

Claim 45 (Currently Amended): A transformer comprising:

a high voltage winding having turns; and

a low voltage winding having turns, wherein,

each of said high voltage winding and said low voltage winding comprising means for  
handling a high voltage and containing an electric field associated with said high voltage, and  
the turns of the high voltage winding being intermixed with turns of the low voltage  
winding,

said means for handling a high voltage includes means for setting an electric potential of an outer surface of at least one of said high voltage winding and said low voltage winding to ground potential, wherein said means for handling a high voltage includes a flexible conductor, said flexible conductor includes

a central electrical conductor,

a first layer having semi-conducting properties provided around said electrical conductor,

a solid insulating layer provided around said first layer, and

a second layer having semi-conducting properties provided around said solid insulating layer and configured to contain an electric field in the flexible conductor, and said central conductor includes a plurality of strands of wire, a portion of said strands being insulated strands such that at most only a minority of said plurality of strands being in electrical contact with other strands that are not insulated.